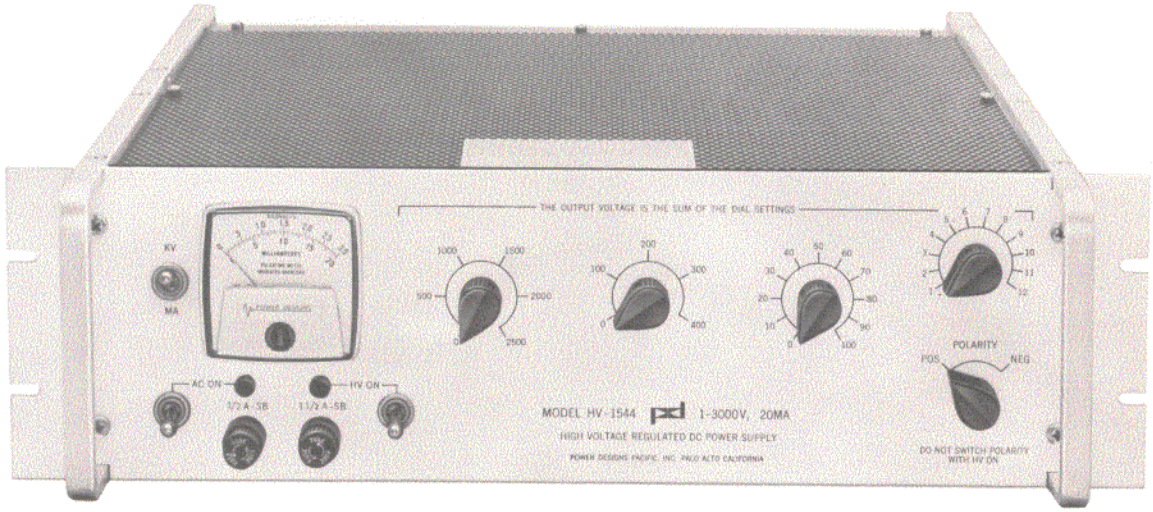
MODELS 1544, 1547

# CALIBRATED HIGH VOLTAGE SOURCE

## 1-3012 VOLTS DC
## MODEL 1544:0-20MA MODEL 1547:0-40MA




### APPLICATIONS

**PHOTO MULTIPLIERS**
**SOLID STATE DETECTORS**
**PROPORTIONAL COUNTERS**
**ELECTRON OPTICS**
**IMAGE INTENSIFIERS**
**CRT DISPLAYS**
**CW LASERS**

### GENERAL DESCRIPTION

The Models 1544 and 1547 calibrated high voltage power sources are designed to supply closely regulated DC with unusually low noise and ripple content. These instruments reflect field experience with more than 5000 units in service for over eight years.

High voltage components including plate, heater transformers and voltage multiplier assemblies are environmentally isolated in vacuum encapsulated epoxy modules.

### FEATURES

- Calibrated digital control of output voltage in thousand, hundred and ten volt steps with a 10 volt interpolation potentiometer having a resolution of better than 10 millivolts. Overall accuracy is better than 0.25% of the dial settings above 250 volts.
- All solid state silicon transistor control amplifier employing a new 25-volt, low noise zener voltage reference. A vacuum tube is utilized for the series pass function only.
- Fast acting electronic overload protection permits continuous operation into a short circuit without damage. Circuit periodically senses output condition, restores normal function automatically upon fault clearance. Pulsating meter signals malfunction*.
- Polarity reversing switch provides operation with either positive or negative output terminal at ground potential. An option is available for operation of the normally grounded terminal at up to 500 volts above chassis for pulse height analyzer automatic calibration control, modulation or similar applications.

*Robotec® Patent No. 3,083,330

SERIAL NO: 205045

**POWER DESIGNS**

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## DESIGN FEATURES

- Vacuum tube/semiconductor regulator system prevents voltage overshoot on turn-on or turn-off and eliminates time delay relay circuits.
- Silicon semiconductor amplifier with low noise differential amplifier input stage, and better than 50 microsecond response time.
- *Fast, self-indicating electronic overload and short circuit protection permitting continuous operation into a short circuit with automatic restoration upon fault clearance. Pulsating voltmeter needle signals overload.
- Corona free epoxy encapsulated transformers with multiple electrostatic shielding.
- Prestabilized solid state voltage reference with .001%/°C temperature coefficient and 15 microvolt noise level.
- Precision 4-dial voltage control calibrated to better than 0.25% utilizing low leakage ceramic and delrin switches and 5 PPM sealed wirewound resistors. Resettable to 0.1%.
- High resolution voltage output vernier potentiometer with precious metal wiper arm and resistance card with soldered end contacts.
- Glow discharge tubes protect transistors and precision divider resistors against high voltage transients.
- Lifetime silicon high voltage rectifier employing one ampere diodes in a multiple series configuration with built-in switching transient suppression. Voltage derated to 50% of maximum operating potentials.
- Electronic current limiter holds output to 125% of rating protecting loads such as sensitive photomultiplier tubes and permitting use as a capacitor charging source.
- BNC "safety" high voltage output receptacles safeguard against accidental insertion of low voltage coaxial leads and connectors.
- Dual volt-ammeter for output voltage or current monitoring.
- Low leakage plastic dielectric output and feedback capacitors in high voltage circuits. Computer grade electrolytic capacitors in low voltage circuits.
- Polarity reversing switch permits supply operation with either positive or negative output terminal at ground potential.
- Line and load circuits separately fused. Accessible at front panel. Separate HV on-off switch.
- Front and rear handle/rail construction provides ease in bench handling or relay rack installation.
- Fifty hour pre-aging of power supply prior to final test insures field service reliability.

*ROBOTEC® Patent No. 3,083,330

## ELECTRICAL SPECIFICATIONS

**OUTPUT:** 1 Volt to 3012 Volts D-C, continuously adjustable.
Model 1544: 0-20 milliamperes maximum.
Model 1547: 0-40 milliamperes maximum.

**INPUT:** 105-125 Volts, 47-440 Hz.
Model 1544: *110 Watts.
Model 1547: *231 Watts.

**REGULATION:** 0.001% plus 2 millivolts for line or load variations over the operating range.

**RIPPLE:** 1 millivolt peak to peak, maximum.

**RESPONSE TIME:** Less than 50 microseconds to return to within regulation limits for 100% step change in rated load.

**STABILITY:** Less than .005% drift in output voltage per hour; less than 0.02% drift per 24 hour period at constant ambient temperature after warm-up.

*At nominal line voltage.

**VOLTAGE CONTROLS:** Precision calibrated voltage divider:
0 to 2500 Volts in five 500 Volt steps
0 to 400 Volts in four 100 Volt steps
0 to 100 Volts in ten 10 Volt steps
1 to 12 Volts fine adjustment potentiometer

**CALIBRATION ACCURACY:** 0.25% of the voltage control dial readings from 250-3012 Volts; 1.0% or 100 millivolts (whichever is greater) from 1-250 Volts.

**RESOLUTION:** 10 millivolts (fine adjustment potentiometer).

**RESETTABILITY:** 0.1% or 100 millivolts.

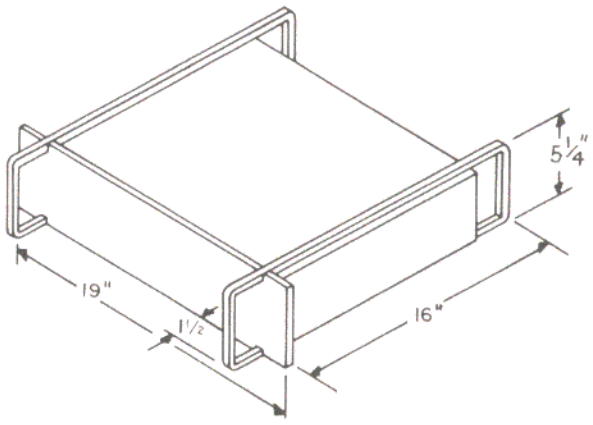
**TEMPERATURE COEFFICIENT:** 25 parts per million per °C change in ambient after warm-up.

**OPERATING TEMPERATURE:** Continuous duty at full load from 0-50°C ambient.

**OUTPUT TERMINALS:** Two BNC "safety" high voltage receptacles on rear chassis surface.

**POLARITY REVERSING SWITCH:** Panel reversing switch permits operation with either positive or negative output terminal at ground potential.

## MECHANICAL SPECIFICATIONS




**WEIGHT:** Model 1544: 27 lbs.
Model 1547: 33 lbs.

**FINISH:** Smooth light grey vinyl synthetic enamel panel with black nomenclature. Golden alodine chassis. Grey epoxy enamel perforated metal dust covers. Brushed anodized natural aluminum handles and rails.

**Model 1544** ..... $520.00 F.O.B. Westbury
**Model 1547** ..... $575.00 F.O.B. Westbury

For 210-250V, 47-440 Hz operation
**Model 1544K** ..... $545.00 F.O.B. Westbury
**Model 1547K** ..... $600.00 F.O.B. Westbury



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